PATENT
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AMENDMENTS

TO THE CLAIMS

1. (original): A system for processing communication data from a code signal input, the system comprising:

a signal sampler operable to receive signal data;

a Doppler shift system operable to provide a Doppler shift correction value; and

a time domain signal processor in signal communication with the signal sampler, the Doppler shift system and the code signal input, the time domain signal processor operable to shift the signal data by the Doppler shift correction value and to determine a correlation between the shifted signal data and the code signal input.

2. (original): The system of claim 1 wherein the code signal input is a code division multiple access signal.

3. (original): The system of claim 1 wherein the time domain signal processor is a matched filter processor.

4. (original): The system of claim 3 wherein the matched filter processor further comprises

a storage circuit configured to receive and store the signal data,

a complex mixer, coupled to the storage circuit and Doppler shift system, for mixing at least a portion of the signal data with the Doppler shift correction value,

a complex product generation circuit, coupled to the complex mixer and the code signal input, for computing a complex product of the mixed portion of the signal data with a current code phase of the code signal,

a summing circuit, coupled to the complex product generation circuit, for summing the computed complex products as a current complex integration value,

a square root circuit, coupled to the summing circuit, for computing a square root value of the sum of the squares of the current complex integration values, each square root value having a magnitude and an associated code phase, and

an output processing circuit, coupled to the square root circuit, for processing a plurality of computed square root values, wherein the code phase and magnitude of the computed square root value having the largest magnitude indicates the correlation between the Doppler corrected signal data and the code signal.

5. (original): The system of claim 1 wherein the Doppler shift system further comprises a Doppler shift generator.

6. (original): The system of claim 1 wherein the Doppler shift system further comprises a lookup table with stored precomputed Doppler shift correction values.

7. (original): The system of claim 1 wherein the Doppler shift system is coupled to the time domain signal processor by a data bus.

8. (original): The system of claim 1 wherein the signal sampler receives the signal data from a radio frequency receiver.

9. (original): A method for processing communication data comprising:

receiving signal data;

applying a Doppler shift correction value to the signal data;

receiving a code signal; and

determining a correlation between the Doppler shifted signal data and the code signal in a time domain.

10. (original): The method of claim 9 wherein applying a Doppler shift correction value to the signal data comprises complex mixing at least a portion of the signal data with Doppler shift correction value.

11. (original): The method of claim 9 wherein applying a Doppler shift correction value to the signal data comprises

receiving the Doppler shift correction value over a data bus, and

complex mixing at least a portion of the signal data with the Doppler shift correction value.

12. (original): The method of claim 9 wherein applying a Doppler shift correction value to the signal data comprises

receiving the Doppler shift correction value from a lookup table, and

complex mixing at least a portion of the signal data with the Doppler shift correction value.

13. (original): The method of claim 10 wherein determining the correlation between the Doppler shifted signal data and the code signal comprises

(a) computing complex products for the mixed portion of the signal data with a current code phase of the code signal,

(b) summing the computed complex products as a current complex integration value,

(c) computing the square root value of the sum of the squares of the current complex integration value, each square root value having a magnitude and an associated code phase,

(d) shifting the code signal to a next current code phase,

(e) repeating (a) through (d) for the current code phase of the code signal, and

(f) outputting the code phase and magnitude of the computed square root value having the largest magnitude as an indication of the correlation between the Doppler shifted signal data and the code signal.

14. (original): The method of claim 9 wherein determining the correlation between the Doppler shifted signal data and the code signal comprises processing the Doppler shifted signal data and the code signal with a matched filter processor.

15. (original): A system for processing radio frequency data comprising:

a signal sample receiver operable to receive signal data;

a Doppler shift corrector operable to provide a Doppler shift correction value;

a code signal receiver operable to receive a code signal;

a processor coupled to the signal sample receiver, the Doppler shift corrector, and the code signal receiver, the processor operable to apply the Doppler shift correction value to the signal data and to determine a correlation between the Doppler shifted signal data and the code signal; and

a signal processor coupled to the signal sample receiver, the signal processor operable to process the signal data to extract encoded data.

16. (original): The system of claim 15 wherein the processor further comprises

a complex mixer coupled to the signal sample receiver, the complex mixer operable to mix at least a portion of the signal data with a Doppler shift correction value,

a complex product processor coupled to the complex mixer, the complex product processor operable to compute a complex product of the mixed portion of the signal data and a current code phase of a code signal,

a summer coupled to the complex product processor, the summer operable to compute the complex products as a current complex integration value,

a square root processor coupled to the summer, the square root processor operable to compute the value of the sum of the squares of the current complex integration value, each square root value having a magnitude and an associated code phase,

a code phase shifter coupled to the complex product processor, the code phase shifter operable to shift the code signal to a next current code phase, and

a controller operable to determine the code phase and magnitude of the computed square root value having the largest magnitude as an indication of correlation between the Doppler shifted input signal and the code signal.

17. (currently amended): The system of claim ~~13~~15 wherein the system is implemented in computer code operating on a computing processor of a code division multiple access radio receiver.

18. (currently amended): The system of claim ~~13~~15 wherein the system is implemented in a semiconductor device.

19. (currently amended): The system of claim ~~13~~15 wherein the system is implemented in an application-specific integrated circuit.

20. (currently amended): The system of claim ~~13~~15 wherein the processor is a time domain signal processor.

21. (currently amended): The system of claim ~~13~~15 wherein the processor is a frequency domain signal processor.

22. (original): A system for processing communication data from a code signal input, the system comprising:

means for receiving signal data;

means for providing a Doppler shift correction value; and

a time domain signal processor coupled to the receiving means, providing means and the code signal input, the time domain signal processor operable to shift the signal data by the Doppler shift correction value and to determine a correlation between the shifted signal data and the code signal input.

23. (original): The system of claim 22 wherein the code signal input is a code division multiple access signal.

24. (original): The system of claim 23 wherein the time domain signal processor is a matched filter processor.

25. (original): The system of claim 24 wherein the matched filter processor further comprises

means for storing configured to receive and store the signal data,

means for complex mixing, coupled to the storing means and providing means, for mixing at least a portion of the signal data with the Doppler shift correction value,

means for complex product generation, coupled to the complex mixing means and the code signal input, for computing a complex product of the mixed portion of the signal data with a current code phase of the code signal,

means for summing, coupled to the complex product generation means, for summing the computed complex products as a current complex integration value,

means for generating an envelope, coupled to the summing means, for computing a square root value of the sum of the squares of the current complex integration values, each square root value having a magnitude and an associated code phase, and

an output processing circuit, coupled to the generating an envelope means, for processing a plurality of computed square root values, wherein the code phase and magnitude of the computed square root value having the largest magnitude indicates the correlation between the Doppler corrected signal data and the code signal.

26. (original): The system of claim 22 wherein the providing means further comprises a Doppler shift generator.

27. (original): The system of claim 22 wherein the providing means further comprises a lookup table with stored precomputed Doppler shift correction values.

28. (original): The system of claim 22 wherein the providing means is coupled to the time domain signal processor by a data bus.

29. (original): The system of claim 22 wherein the receiving means receives the signal data from a radio frequency receiver.

30. (original): A computer data signal embodied in a carrier wave comprising:

(a) a receiving source code segment comprising means for receiving signal data; and

(b) a processing source code segment comprising

(i) means for providing a Doppler shift correction value, and

(ii) means for processing coupled to the receiving means, providing means and the code signal input, the processing means operable to shift the signal data by the Doppler shift correction value and to determine a correlation between the shifted signal data and the code signal input.

31. (original): The computer data signal of claim 30 wherein the code signal input is a code division multiple access signal.

32. (original): The computer data signal of claim 31 wherein the means for processing is a matched filter routine.

33. (original): The computer data signal of claim 32 wherein the matched filter routine further comprises

means for storing configured to receive and store the signal data,

means for complex mixing, coupled to the storing means and providing means, for mixing at least a portion of the signal data with the Doppler shift correction value,

means for complex product generation, coupled to the complex mixing means and the code signal input, for computing a complex product of the mixed portion of the signal data with a current code phase of the code signal,

means for summing, coupled to the complex product generation means, for summing the computed complex products as a current complex integration value,

means for generating an envelope, coupled to the summing means, for computing a square root value of the sum of the squares of the current complex integration values, each square root value having a magnitude and an associated code phase, and

means for output processing, coupled to the generating an envelope means, for processing a plurality of computed square root values, wherein the code phase and magnitude of the computed square root value having the largest magnitude indicates the correlation between the Doppler corrected signal data and the code signal.

34. (original): A computer data signal embodied in a carrier wave comprising:

(a) a receiving source code segment comprising means for receiving signal data; and

(b) a processing source code segment comprising

(i) means for applying a Doppler shift correction value to the signal data,

(ii) means for receiving a code signal, and

(iii) means for determining a correlation between the Doppler shifted signal data and the code signal in a time domain.

35. (original): The computer data signal of claim 34 wherein the applying means comprises means for complex mixing at least a portion of the signal data with Doppler shift correction value.

36. (original): The computer data signal of claim 34 wherein the applying means comprises

means for receiving the Doppler shift correction value over a data bus, and

means for complex mixing at least a portion of the signal data with the Doppler shift correction value.

37. (original): The computer data signal of claim 34 wherein the determining means comprises

means for computing complex products for the mixed portion of the signal data with a current code phase of the code signal,

means for summing the computed complex products as a current complex integration value,

means for computing the square root value of the sum of the squares of the current complex integration value, each square root value having a magnitude and an associated code phase,

means for shifting the code signal to a next current code phase, and

means for outputting the code phase and magnitude of the computed square root value having the largest magnitude as an indication of the correlation between the Doppler shifted signal data and the code signal.

38. (original): The computer data signal of claim 34 wherein the determining means comprises means for processing the Doppler shifted signal data and the code signal with a matched filter routine.

39. (original): A computer readable medium having software for processing communication data from a code signal, the computer readable medium comprising:

means for receiving signal data;

means for applying a Doppler shift correction value to the signal data;

means for receiving the code signal; and

means for determining a correlation between the Doppler shifted signal data and the code signal in a time domain.

40. (original): The computer readable medium of claim 39 wherein the applying means comprises means for complex mixing at least a portion of the signal data with Doppler shift correction value.

41. (original): The computer readable medium of claim 39 wherein the applying means comprises

means for receiving the Doppler shift correction value over a data bus, and

means for complex mixing at least a portion of the signal data with the Doppler shift correction value.

42. (original): The computer readable medium of claim 39 wherein applying means comprises

means for receiving the Doppler shift correction value from a lookup table, and

means for complex mixing at least a portion of the signal data with the Doppler shift correction value.

43. (original): The computer readable medium of claim 39 wherein the determining means comprises

means for computing complex products for the mixed portion of the signal data with a current code phase of the code signal,

means for summing the computed complex products as a current complex integration value,

means for computing the square root value of the sum of the squares of the current complex integration value, each square root value having a magnitude and an associated code phase,

means for shifting the code signal to a next current code phase, and

means for outputting the code phase and magnitude of the computed square root value having the largest magnitude as an indication of the correlation between the Doppler shifted signal data and the code signal.

44. (original): The computer readable medium of claim 39 wherein the determining means comprises means for processing the Doppler shifted signal data and the code signal with a matched filter routine.